

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) A mature protein having an antagonistic activity against bone morphogenetic proteins, obtained by converting at least one methionine or tryptophane residue ~~among methionine residues or tryptophane residues~~ existing in the receptor binding site ~~amino acid sequence~~ of mature human MP52 (SEQ ID NO 1) to a hydrophilic residue by chemical modification, or replacing said residues with a hydrophilic amino acid residue or a polar amino acid residue.
2. (Original) The mature protein according to claim 1, wherein the chemical modification for said methionine residue is an oxidization reaction.
3. (Original) The mature protein according to claim 2 in which four methionine residues are oxidized and having the amino acid sequence of SEQ ID NO 5.
4. (Original) The mature protein according to claim 1, wherein the chemical modification for said methionine residue is an alkylation reaction.
5. (Original) The mature protein according to claim 4 wherein the alkylation reaction is S-carboxymethylation in which at least one methionine residue is S-carboxymethylated and having the amino acid sequence of SEQ ID NO 6.
6. (Original) The mature protein according to claim 1, wherein the chemical modification for said tryptophane residue is an allylsulphenylation reaction.

7. (Original) The mature protein according to claim 6 in which two tryptophane residues are allylsulphenylated and having the amino acid sequence of SEQ ID NO 7.
8. (Previously Presented) The mature protein according to claim 1, wherein said mature human MP52 is a dimer protein.
9. (Original) A mature protein having an antagonistic activity against bone morphogenetic proteins, obtained by converting at least one residue of tryptophane residues existing in the amino acid sequences of mature human BMP-2 (SEQ ID NO 2), mature human BMP-4 (SEQ ID NO 3) or mature human BMP-7 (SEQ ID NO 4) to a hydrophilic residue by chemical modification, or replacing said residues with a hydrophilic amino acid residue or a polar amino acid residue.
10. (Original) A mature protein having an antagonistic activity against bone morphogenetic proteins, obtained by replacing at least one amino acid residue of three hydrophobic amino acid residues, among said hydrophobic amino acid residues relating to a receptor binding site in the amino acid sequences of mature human BMP-2 (SEQ ID NO 2), mature human BMP-4 (SEQ ID NO 3), or mature human BMP-7 (SEQ ID NO 4), which are located in positions corresponding to those of methionine residues located in 30th, 71st, and 74th positions of the amino acid sequence of mature human MP52 (SEQ ID NO 1) with a hydrophilic amino acid residue or a polar amino acid residue.
11. (Previously Presented) The mature protein according to claim 9, wherein said mature human BMP-2, mature human BMP-4, or mature human BMP-7 is a dimer protein.

12. (Previously Presented) An agent for therapy and/or prevention of ectopic ossification containing a mature protein according to claim 1 as an effective ingredient showing an antagonistic activity against a bone morphogenetic protein.
13. (Previously Presented) An agent for therapy and/or prevention of metabolic diseases with calcification, containing a mature protein according to claim 1 as an effective ingredient showing an antagonistic activity against a bone morphogenetic protein.
14. (Previously Presented) A method of treating ectopic ossification in warm-blooded animals comprising administering to warm-blooded animals in need thereof an amount of a mature protein according to claim 1 sufficient to treat ectopic ossification.
15. (Previously Presented) A method of treating metabolic diseases with calcification in warm-blooded animals comprising administering to warm-blooded animals in need thereof an amount of a mature protein of claim 1 sufficient to treat said metabolic diseases.
16. (New) A mature modified protein obtained by converting at least one methionine or tryptophan residue existing in the receptor binding site of mature human MP52 (SEQ ID NO:1) to a hydrophilic residue by chemical modification, or replacing said residues with a hydrophilic amino acid residue or a polar amino acid residue.
17. (New) A mature protein having a BMP antagonist-like activity obtained by converting at least one methionine or tryptophan residue existing in the receptor binding site of mature human MP52 (SEQ ID NO:1) to a hydrophilic residue by

chemical modification, or replacing said residues with a hydrophilic amino acid residue or a polar amino acid residue.

18. (New) A mature modified protein obtained by converting at least one methionine residue at position 30, 71 or 74 or at least one tryptophan residue existing in mature human MP52 (SEQ ID NO:1) to a hydrophilic residue by chemical modification, or replacing said residues with a hydrophilic amino acid residue or a polar amino acid residue, wherein said mature modified protein has antagonistic activity against at least one BMP protein selected from the group consisting of MP52, BMP-2, BMP-4 and BMP-7.